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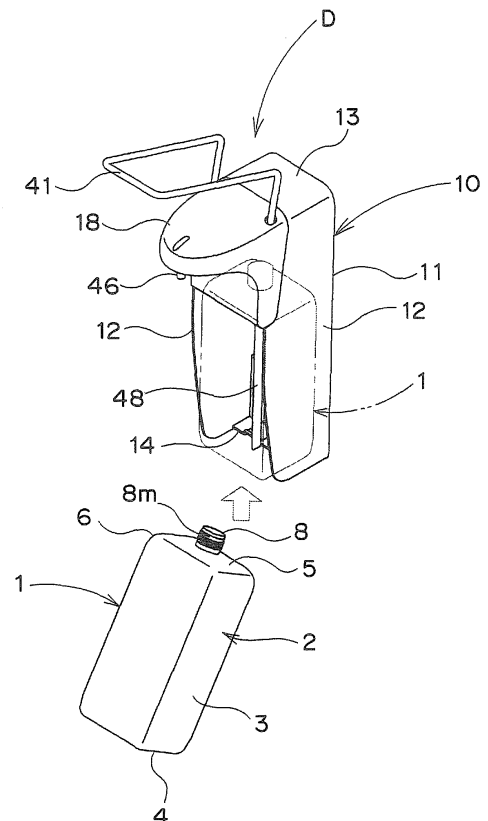
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(54) **Dispenser**

(57) The dispenser according to the present invention comprises

a) a casing body (10) for detachably attaching a container (1); b) a pump device for suctioning the fluid inside the container through a suction pipe (48) and discharging the fluid through a discharge pipe (46); c) a driving mechanism (41) of the pump device; d) a securing mechanism having a cap engaged by the pump device and contacts to an upper surface of a base plate of the holding bracket and an adaptor engaged by the cap from downward and contacts to a lower surface of the base plate, in order to secure the pump device to a holding bracket of the casing body; and e) a bottom wall (14) of the casing body for supporting a bottom (4) of the container attached to the casing body. And, the adaptor has a flexible skirt part close adhered to wall surface of upper portions (5,6) of the container attached to the casing body and urges the container downward, and secures the container between the bottom wall and the skirt part itself.

*Fig. 1*



## Description

### TECHNICAL FIELD

**[0001]** The present invention relates to a dispenser, more specifically, to a dispenser which is used in a state that a container filled with fluid content such as liquid medicine or soap is detachably attached to a casing body of the dispenser.

### BACKGROUND ART

**[0002]** Conventionally, as a dispenser, there exists a well known one which is used in a state that a container filled with fluid content such as liquid medicine or soap is detachably attached to a casing body of the dispenser, and the fluid in the container is pumped up by a pump mechanism and discharged through a discharge nozzle (refer to Japanese Patent Laid-open Publication No. H9-48479, for example).

**[0003]** In such a dispenser, when content in the container should be refilled or the type thereof should be changed, it is common to replace the whole container with new one.

The container is usually connected to the pump mechanism by means of a screw thread provided at an inlet and outlet port portion of the container. Accordingly, in a dispenser having a construction in which the pump mechanism is assembled to the casing body, when the container is replaced, firstly a used container is detached from the pump mechanism by unscrewing the screw thread provided at the inlet and outlet port portion of the container. Thereafter, a screw thread provided at an inlet and outlet port portion of a new replacement container is screwed and fastened onto a screw thread of the pump mechanism, thereby, a new replacement container is attached to the casing body in a state that the container is connected to the pump mechanism.

### DISCLOSURE OF THE INVENTION

**[0004]** However, as mentioned above, in a case that the new replacement container is attached to the casing body by screwing and fastening the screw thread provided at the inlet and outlet port portion of the container onto the screw thread of the pump mechanism assembled to the casing body, there exists a need for an unscrewing work in detaching the used container and a screwing and fastening work in attaching the replacement container. And, there is a drawback that those works are troublesome, since they require considerable time and effort.

**[0005]** Also, in attaching the replacement container to the casing body, the casing body has only a limited space for attaching the container, further, attaching work of the container to the casing body must be conducted with inserting a suction tube into the container, wherein the suction tube is for suctioning fluid from inside the container. Still further, the screw thread of the pump mechanism is

hard to observe visually in many cases. Accordingly, there causes occasionally an incorrect screwing or a poor fastening, in screwing and fastening the screw thread provided at the inlet and outlet port portion of the container onto the screw thread of the pump mechanism.

**[0006]** When such the incorrect screwing or the poor fastening are caused, the container will not be stably held in the casing body, also, foreign matters may enter into the container or the pump mechanism through the connection of the screw threads, further, the fluid in the container may possibly leak out of the container.

**[0007]** The present invention has been accomplished in view of the above technical problem, and it is a basic object of the invention to provide a dispenser of which the container can be easily and surely attached to the casing body, and further entering of foreign matters into the container or the pump mechanism and leakage of fluid in the container can be effectively prevented.

**[0008]** To achieve the object, the present invention provides a dispenser comprising: a) a casing body for detachably attaching a container filled with predetermined fluid thereto; b) a pump device for suctioning the fluid inside the container attached to the casing body therefrom through a suction pipe and discharging the fluid outside the casing body through a discharge pipe; c) a driving mechanism for driving the pump device; d) a securing mechanism for securing the pump device to a holding plate of the casing body, the securing mechanism having d1) an upper fixture engaged by the pump device and contacts to an upper surface of the holding plate and d2) a lower fixture engaged by the upper fixture from downward and contacts to a lower surface of the holding plate; and e) a bottom support for supporting a bottom of the container attached to the casing body, the bottom support is provided at the bottom of the casing body. And the lower fixture has a flexible skirt part close adhered to an upper wall of the container attached to the casing body and urges the container downward, and secures the container between the bottom support and the skirt part itself.

**[0009]** In this case, the upper fixture and the lower fixture can secure the pump device to holding plate of the casing body by fastening to each other with sandwiching the holding plate therebetween.

**[0010]** Further, in this case, the lower fixture is preferably constituted by a first adaptor having a screw thread which is to be fastened to the upper fixture; and a second adaptor assembled to the first adaptor and having the flexible skirt part at a lower portion thereof.

**[0011]** According to the present invention, the pump device is secured to the holding plate of the casing body by the upper fixture and the lower fixture, and the wall surface of an upper portion of the container attached to the casing body is urged downward by the flexible skirt part of the lower fixture, and the container attached to the casing body is secured between the bottom support of the casing body and the skirt part itself.

Therefore, when the container is replaced, an unscrewing work in detaching the used container and a screwing

and fastening work in attaching the replacement container are not required, and a replacing work of the container is remarkably simplified, also, the container can be easily and surely attached to the casing body. Further more, since the flexible skirt part urges the container downward in a state that the flexible skirt part close adhered to an upper wall of the container, it is possible to prevent surely foreign matters from entering into the container or the pump mechanism, and the fluid in the container from leaking out of the container.

**[0012]** In this case, the upper fixture and the lower fixture secure the pump device to holding plate of the casing body by fastening to each other with sandwiching the holding plate therebetween. Thereby, it is possible to easily and surely secure the pump device to the casing by utilizing the fastening mechanism of screw threads.

**[0013]** Further, in this case, the lower fixture is constructed as two-fraction body consist of a first adaptor having a screw thread which is to be fastened to the upper fixture; and a second adaptor assembled to the first adaptor and having the flexible skirt part at a lower portion thereof. Thereby, the lower fixture can be easily-manufactured comparatively, even when the lower fixture has a complicated general shape. Further, it is possible to use different materials having different required characteristics respectively for the first adaptor having a screw thread and the second adaptor having the flexible skirt part. Thereby, degree of freedom in selecting the materials can be increased in manufacturing the adaptor.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0014]** The present invention will be explained in further detail with reference to the accompanying drawings.

**[0015]** Fig. 1 is a perspective view schematically showing an overall constitution of a casing body and a replacement container of a dispenser according to an embodiment of the present invention.

**[0016]** Fig. 2 is a vertical sectional view showing the dispenser in a state that the container is attached to the casing body.

**[0017]** Fig. 3 is a partially enlarged sectional view showing enlarged a Y3-portion in Fig. 2.

**[0018]** Fig. 4 is a perspective view schematically showing a constitution of a hold bracket for holding a pump device of the dispenser.

**[0019]** Fig. 5 is a vertical sectional view showing a sectional construction of the pump device of the dispenser in an inoperative condition of the pump.

**[0020]** Fig. 6 is a vertical sectional view showing a sectional construction of the pump device in an operative condition of the pump.

**[0021]** Fig. 7 is an exploded perspective view schematically showing a constitution of an adaptor of the dispenser.

**[0022]** Fig. 8 is a perspective view showing the adaptor as a whole in an assembled state.

**[0023]** Fig. 9 is a partial sectional view showing a sec-

tional construction of the adaptor in a state just before the container is attached thereto.

**[0024]** Fig. 10 is a partial sectional view showing a sectional construction of the adaptor in a state that the container is attached thereto.

#### PREFERRED EMBODIMENTS OF THE INVENTION

**[0025]** Hereinafter, an embodiment of the present invention will be explained in detail with reference to the accompanying drawings.

Fig. 1 is a perspective view schematically showing an overall constitution of a casing body and a replacement container of a dispenser according to an embodiment of the present invention; Fig. 2 is a vertical sectional view showing the dispenser in a state that the container is attached to the casing body; Fig. 3 is a partially enlarged sectional view showing enlarged a Y3-portion in Fig. 2; Fig. 4 is a perspective view schematically showing a constitution of a hold bracket for holding a pump device of the dispenser; Fig. 5 is a vertical sectional view showing a sectional construction of the pump device of the dispenser in an inoperative condition of the pump; and Fig. 6 is a vertical sectional view showing a sectional construction of the pump device in an operative condition of the pump.

**[0026]** As shown in those drawings, the dispenser D according to the present embodiment is of so-called manual type in which a pump device is manually driven, for example. And the dispenser is used in a state that a liquid medicine container 1 filled with liquid medicine such as liquid soap is attached to a casing body 10, as shown in Fig. 2.

**[0027]** As shown in Fig. 1, the container 1 includes a bottle-shaped container body 2, and an inlet and outlet port portion 8 provided at a central portion of an upper end of the container body 2. The container 1 is made of synthetic resin material and integrally formed by means of blow molding. The container body 2 includes a thin cylindrical barrel 3, a bottom 4 which covers and closes a lower end of the barrel 3, an upper surface portion 5 which covers an upper end of the barrel 3 and is provided with the inlet and outlet port portion 8 at its central portion, and a curved shoulder 6 which forms a peripheral edges and peripheries thereof of the upper surface portion 5. Although the barrel 3 of the container body 2 is formed into a rectangular cylindrical shape in this embodiment, the barrel 3 may be of a circular cylindrical shape instead. Although the upper surface portion 5 is relatively flat, it may be conical or domical curved face in shape including the shoulder 6.

**[0028]** The container 1 is in storage in a predetermined storage place in a state that a cap (not shown) is threadedly put on a male screw thread 8m of the inlet and outlet port portion 8 provided at the central portion of an upper end of the container 1 until the container 1 is attached to a casing body 10. When the container 1 is attached to the casing body 10, the cap is threadedly removed from

the male screw thread 8m of the inlet and outlet port portion 8. Instead of this constitution, the cap (not shown) may detachably be attached to the inlet and outlet port portion 8 of the container 1 by a fitting constitution without using the screw mechanism. Content filled in the container 1 is not limited to liquid medicine such as soap, and various fluids filled in the container 1 and used depending on intended use.

**[0029]** The casing body 10 includes a housing portion 11 in which the container 1 can be accommodated, and a cover portion 18 mounted on an upper portion of the housing portion 11. A main portion of the housing portion 11 is manufactured from steel plate by press forming, and the cover portion 18 is manufactured from synthetic resin material by injection molding. The materials and manufacturing methods of the housing portion 11 and the cover portion are not limited to those.

**[0030]** The housing portion 11 includes a pair of right and left parallel side walls 12 (see Fig. 1), a ceiling 13 which connects upper ends of the side walls 12, and a bottom wall 14 which connects lower ends of the right and left side walls 12. An accommodating space 11s in which the container 1 is accommodated is formed between the right and left side walls 12. One side and a lower portion of the one side of the accommodating space 11s are opened so that the container 1 is inserted into the accommodating space 11s from the opening 11h. In this specification, a side from which the container 1 is inserted (left side in Figs. 2, 5 and 6) is called "front side" of the casing body 10 or the housing portion 11.

**[0031]** As shown in Fig. 3 in detail, a projecting portion 14p which projects upward by a predetermined height is provided on a front end of the bottom wall 14. A curved edge 4a which is curved at a predetermined curvature is formed on a peripheral edge of the bottom 4 of the container 1, and a smoothly curved inclined portion 4b is provided from an inner side of the curved edge 4a toward the central portion of the container bottom 4. When the container 1 is attached into the housing portion 11, the bottom 4 of the container 1 is supported on the bottom wall 14 of the housing portion 11 in a state that the curved edge 4a rides over the projecting portion 14p of the bottom wall 14, the curved inclined portion 4b rides over the projecting portion 14p. Since the container 1 is attached into the housing portion 11 in a state that the curved edge 4a of the container bottom 4 rides over the projecting portion 14p of the bottom wall 14 of the housing portion 11, the container bottom 4 does not fall from the bottom wall 14 of the housing portion 11 accidentally.

**[0032]** On a rear portion of the bottom wall 14, there exists a back plate 15 which is opposed to the opening 11h. The back plate 15 is integrally provided on the bottom wall 14, for example. The bottom 4 of the container 1 which is inserted into the accommodating space 11s is supported on the bottom wall 14 of the casing body 10 and a position of the container 1 in the vertical direction is determined, a relatively lower portion of the barrel 3 abuts against the back plate 15 and a position of the

container 1 in the front-back direction is determined. A mounting plate 16 (see Fig. 2) used for mounting the casing body 10 on a vertical wall (not shown) is assembled above the back plate 15 as required.

**[0033]** A hold bracket 20 which holds the pump device 30 is fixed to a vertical appropriate location of a relatively upper portion of the housing portion 11. As shown in Fig. 4, the hold bracket 20 includes a base plate 21 having a substantially U-shaped slot portion 21k as viewed from above, a pair of right and left side plates 22 extending upward from a side end of the base plate 21, and a front plate 23 connecting front ends of the side plates 22. The right and left side plates 22 are threadedly engaged with right and left side walls 12 of the housing portion 11, and the hold bracket 20 is fixed to the housing portion 11 in a state that the base plate 21 is oriented substantially horizontally.

**[0034]** As shown in Figs. 5 and 6 in more detail, the pump device 30 includes a cylindrical body 31, a ball-like valve body 32 and a coil spring 33 accommodated in a pump chamber 31s of the cylindrical body 31, and a drive shaft 34 which is biased upward by the coil spring 33 and slides with respect to the cylindrical body 31. A head 35 provided on an upper end of the drive shaft 34 is pushed down by a roller portion 42 of the drive lever 41 (see Fig. 6), thereby sliding the drive shaft 34 downward and driving the pump device 30, and a given amount of fluid stored in the pump chamber 31s is discharged.

**[0035]** A suction pipe 48 for sucking up liquid medicine in the container 1 into the pump chamber 31s is coupled to a lower end of the pump body 31. The suction pipe 48 is preferably made of elastic material and has sufficient flexibility, in order to secure and enhance the operability when the container 1 is attached to the casing body 10.

**[0036]** A discharge pipe 46 for discharging liquid medicine stored in the pump chamber 31s is coupled to a side of the head 35, and a nozzle portion 47 is assembled on a tip end of the discharge pipe 46. The nozzle portion 47 of the discharge pipe 46 faces outward of the cover portion 18 from a hole provided in the cover portion 18. The drive lever 41 extends such as to project outward of the cover portion 18 from the hole formed in the cover portion 18.

**[0037]** A terminal end of the drive lever 41 is rotatably supported by a hinge portion 43 near an upper end of a rear portion of the housing portion 11 of the casing body 10. If a user turns the drive lever 41 forward and downward from a standby state (non-driving state of the pump) shown in Fig. 5, the roller portion 42 mounted on the drive lever 41 is moved downward as shown in Fig. 6, and the head 35 is pushed down. With this, a given amount of liquid medicine is discharged from the tip end nozzle portion 47 of the discharge pipe 46 coupled to the head 35.

**[0038]** Thereafter, if the user releases his or her hand from the drive lever 41 and releases the drive lever 41, the drive shaft 34 slides upward by a biasing force of the coil spring 33 and the drive lever 41 is returned to the original standby state (see Fig. 5). The ball-like valve

body 32 floats by a difference between a pressure in the container 1 and a pressure in the pump chamber 31s, liquid medicine in the container 1 is pumped up through the suction pipe 48 coupled to the lower end of the cylindrical body 31, and a given amount of liquid medicine is stored in the pump chamber 31s in accordance with a capacity of the pump chamber 31s.

Since the pump device 30 having the above-described constitution is known as a manual pump device, further explanation of its constitution and operation will not be given.

**[0039]** An annular bush 37 is fixed to the cylindrical body 31 of the pump device 30 using a screw mechanism for example. An upper surface portion 38b of the annular cap 38 is locked between the bush 37 and a flange 31b of the cylindrical body 31 located below the bush 37 such that the upper surface portion 38b can not fall. A female thread 38n is formed on an inner surface of the annular portion 38a of the cap 38. A diameter of a lower end surface of the annular portion 38a of the cap 38 is greater than a width of the slot portion 21k formed in the base plate 21 of the hold bracket 20 so that the lower end surface of the annular portion 38a can abut against an upper surface of the base plate 21.

**[0040]** The dispenser D in this embodiment includes an adaptor 50 which fixes the pump device 30 to the hold bracket 20. Next, a constitution and a function of the adaptor 50 will be explained.

Fig. 7 is an exploded perspective view schematically showing a constitution of the adaptor. Fig. 8 is a perspective view showing the adaptor as a whole in an assembled state. Fig. 9 is a partial sectional view showing a sectional constitution of the adaptor in a state just before the container is attached thereto. Fig. 10 is a partial sectional view showing a sectional constitution of the adaptor in a state that the container is attached thereto.

**[0041]** As clearly shown in Fig. 7, the adaptor is preferably divided into two pieces, i.e., the adaptor includes a first adaptor 51 provided with a male screw thread 53m at its upper portion, and a second adaptor 56 assembled to a lower portion of the first adaptor 51.

The first adaptor 51 is preferably made of synthetic resin material, and is integrally formed. The first adaptor 51 includes a large-diameter lower cylindrical portion 52 and a small-diameter upper cylindrical portion 53. The male screw thread 53m is formed around an outer periphery of the upper cylindrical portion 53. The male screw thread 53m is threadedly engaged with the female thread 38n formed in an inner surface of the annular portion 38a of the cap 38.

**[0042]** An outer diameter of the upper cylindrical portion 53 is set smaller than a width of the slot portion 21k formed in the base plate 21 of the hold bracket 20. An outer diameter of an annular upper end face of the lower cylindrical portion 52 is set greater than the width of the slot portion 21k. Therefore, the annular upper end face of the lower cylindrical portion 52 can abut against a lower face of the base plate 21 of the hold bracket 20 in a state

that the upper cylindrical portion 53 is inserted through the slot portion 21k from below.

**[0043]** The second adaptor 56 includes a cylindrical portion 57 having an inner peripheral surface which is fitted into an outer peripheral surface of the lower cylindrical portion 52 of the first adaptor 51, and a skirt portion 58 which spreads downward to increase its diameter from a lower end of the cylindrical portion 57. The second adaptor 56 is made of elastic material such as rubber and soft resign. The skirt portion 58 has sufficient flexibility and sealing characteristics.

**[0044]** An annular locking flange 57b is integrally formed on an inner side of an upper end of the cylindrical portion 57. The locking flange 57b is fitted into an annular groove 52g formed in an upper portion of an outer periphery of the lower cylindrical portion 52 of the first adaptor 51. With this, the second adaptor 56 is integrally assembled to the first adaptor 51.

**[0045]** The adaptor 50 which fixes the pump device 30 to the hold bracket 20 is constituted by dividing into two, i.e., the first adaptor 51 having the male screw thread 53m fastened to the cap 38 of the pump device 30, and the second adaptor 56 which is assembled to the first adaptor 51 and which is provided at its lower portion with the flexible skirt portion 58. With this, the adaptor 50 having the complicated shape as a whole can relatively easily be manufactured. Further, the first adaptor 51 having the male screw thread 53m and the second adaptor 56 having the flexible skirt portion 58 can be made of different materials having different required characteristics respectively. Thereby, degree of freedom in selecting the materials can be increased in manufacturing the adaptor 50. It is to be noted that the adaptor may not be divided into two, and the adaptor may be integrally formed.

**[0046]** When the pump device 30 is fixed to the housing portion 11 of the casing body 10, the cylindrical body 31 of the pump device 30 and the suction pipe 48 are inserted into the slot portion 21k formed in the base plate 21 of the hold bracket 20 fixed to the casing body 10, the upper cylindrical portion 53 of the adaptor 50 (i.e., of the first adaptor 51) is inserted into the slot portion 21k from below in a state that the lower end face of the annular portion 38a of the cap 38 of the pump device 30 is located on the upper face side of the base plate 21, and the male screw thread 53m of the upper cylindrical portion 53 is threadedly engaged with the female thread 38n formed in the inner surface of the annular portion 38a of the cap 38 and is fastened (see Figs. 5 and 6).

**[0047]** With this, the cap 38 and the adaptor 50 are fastened and fixed to each other with the base plate 21 of the hold bracket 20 sandwiched therebetween in a state that the lower end face of the annular portion 38a of the cap 38 abuts against the upper face of the base plate 21 and the annular upper end face of the upper cylindrical portion 53 of the adaptor 50 (i.e., of the first adaptor 51) abuts against the lower face of the base plate 21, and the pump device 30 is fixed to the base plate 21. By fixing the pump device 30 to the base plate 21 in this

manner, it is possible to easily and reliably fix the pump device 30 to the casing body 10 utilizing the screw fastening mechanism.

**[0048]** In the dispenser D having the above-described constitution, when the container 1 filled with liquid medicine is attached to the casing body 10, the container 1 from which the cap of the inlet and outlet port portion 8 is detached is slightly inclined as shown in Fig. 1, the suction pipe 48 is inserted into the container 1 from the inlet and outlet port portion 8, and the container 1 is inserted into the accommodating space 11s from the opening 11h formed in the front side and the lower portion of the front side of the accommodating space 11s of the housing portion 11 of the casing body 10. At that time, if the barrel 3 of the container 1 is inserted upward such that the barrel 3 of the container 1 extends substantially along the back plate 15 of the casing body 10, the container 1 moves vertically such that the inlet and outlet port portion 8 of the container 1 maintains substantially the coaxial state of the inlet and outlet port portion 8 of the container 1 and the adaptor 50 (i.e., the second adaptor 56) (see Fig. 9).

**[0049]** The bottom 4 of the container 1 is supported on the bottom wall 14 of the casing body 10 and positioned in the vertical direction, and a relatively lower portion of the barrel 3 abuts against the back plate 15 and is positioned in the front-back direction. With this, the container 1 is attached into the housing portion 11 of the casing body 10 without requiring the screw fastening operation unlike the conventional manner.

**[0050]** At that time, as shown in Fig. 10, the skirt portion 58 of the adaptor 50 (i.e., of the second adaptor 56), preferably a tip end and its peripheral portion of the adaptor 50 are bent (elastically deformed) such as to come into close adhered state to a wall surface of the shoulder 6 or the upper surface portion 5 of the container 1. The container 1 is biased downward by an elastic force corresponding to this bending amount, and the container 1 is held between the casing body 10 and the bottom wall 14 with a constant biasing force.

**[0051]** At that time, a distance  $L_s$  between the lower face of the base plate 21 of the hold bracket 20 and the upper face of the bottom wall 14 of the casing body 10 is preferably set in accordance with elastic characteristics of the skirt portion 58 and the vertical size of the container 1 such that the bending amount of the skirt portion 58 (i.e., elastic force) fall within desired preferable value range.

**[0052]** As explained above, according to the embodiment, the pump device 30 is secured to the base plate 21 of the hold bracket 20 of the casing body 10 by the cap 38 and the adaptor 50. The wall face of an upper portion (shoulder 6 or upper surface portion 5) of the container 1 attached to the casing body 10 is urged downward by the flexible skirt portion 58 of the adaptor 50, and the container 1 is held between the casing body 10 and the bottom wall 14.

**[0053]** Therefore, when the container 1 is replaced by

a new one, an unscrewing work in detaching the used container and a screwing and fastening work in attaching the replacement container are unnecessary, and the container replacing operation can remarkably be simplified. Also, it is possible to easily and reliably attach the replacement container to the casing body 10. Furthermore, the flexible skirt portion 58 urges the container 1 downward in a state that the skirt portion 58 closes adhered to the wall surface of the upper portion of the container (shoulder 6 or upper surface portion 5). Therefore, it is possible to surely prevent foreign matters from entering into the container 1 or the pump device 30 and prevent fluid in the container 1 from leaking out thereof.

**[0054]** The present invention is not limited to the above embodiments, and can be changed or modified in a range not departing from its gist.

**[0055]** The present invention relates to a dispenser, and it can be effectively utilized as a dispenser in which the container can easily and reliably be attached to the casing body and it is possible to effectively prevent a foreign matter from entering inside and prevent fluid in the container from leaking outside, and in which a container filled with fluid content such as liquid medicine or soap can detachably be attached to the casing body.

## Claims

### 1. A dispenser comprising:

a casing body for detachably attaching a container filled with predetermined fluid thereto;  
a pump device for suctioning the fluid inside the container attached to the casing body therefrom through a suction pipe and discharging the fluid outside the casing body through a discharge pipe;  
a driving mechanism for driving the pump device;  
a securing mechanism for securing the pump device to a holding plate of the casing body, the securing mechanism having an upper fixture engaged by the pump device and contacts to an upper surface of the holding plate and a lower fixture engaged by the upper fixture from downward and contacts to a lower surface of the holding plate;  
a bottom support for supporting a bottom of the container attached to the casing body, the bottom support is provided at the bottom of the casing body; and  
wherein the lower fixture has a flexible skirt part close adhered to an upper wall of the container attached to the casing body and urges the container downward, and secures the container between the bottom support and the skirt part itself.

### 2. A dispenser according to claim 1, wherein the upper

fixture and the lower fixture secure the pump device to holding plate of the casing body by fastening to each other with sandwiching the holding plate therebetween.

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3. A dispenser according to claim 2, wherein the lower fixture comprising:

a first adaptor having a screw thread which is to be fastened to the upper fixture; and  
a second adaptor assembled to the first adaptor and having the flexible skirt part at a lower portion thereof.

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*Fig. 1*

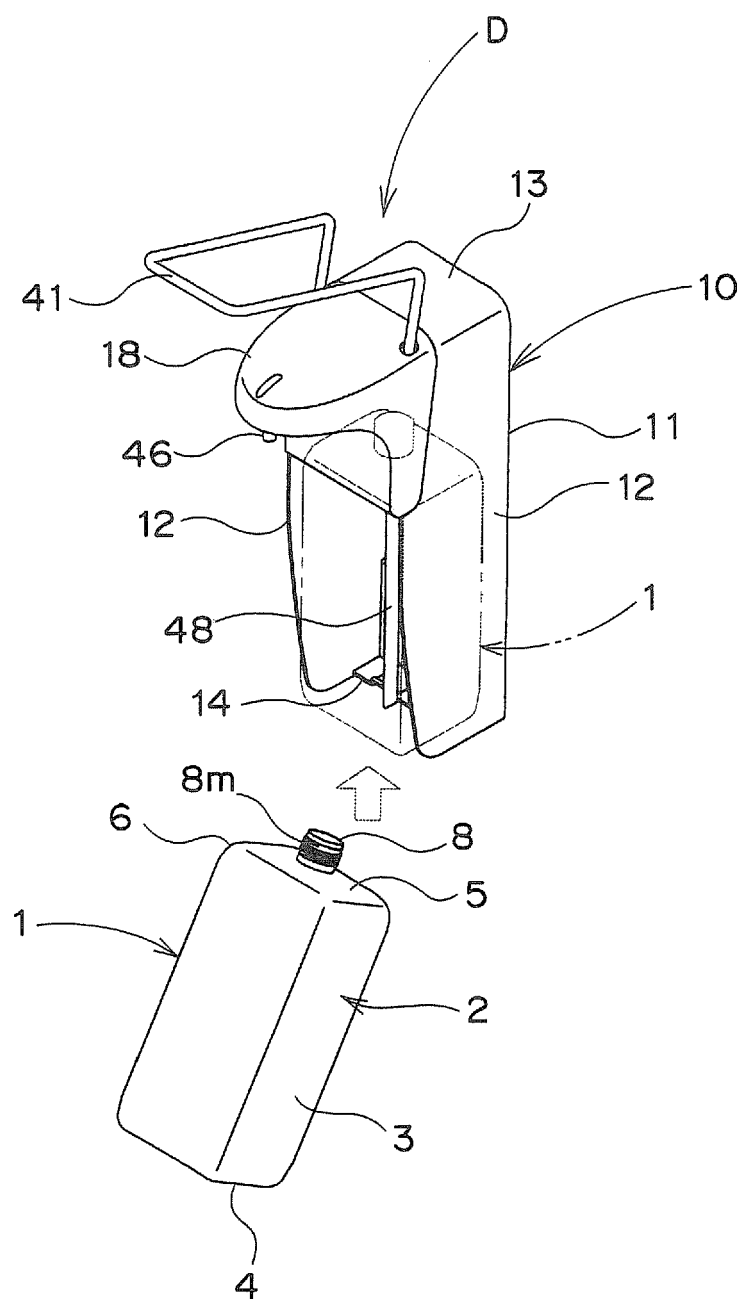
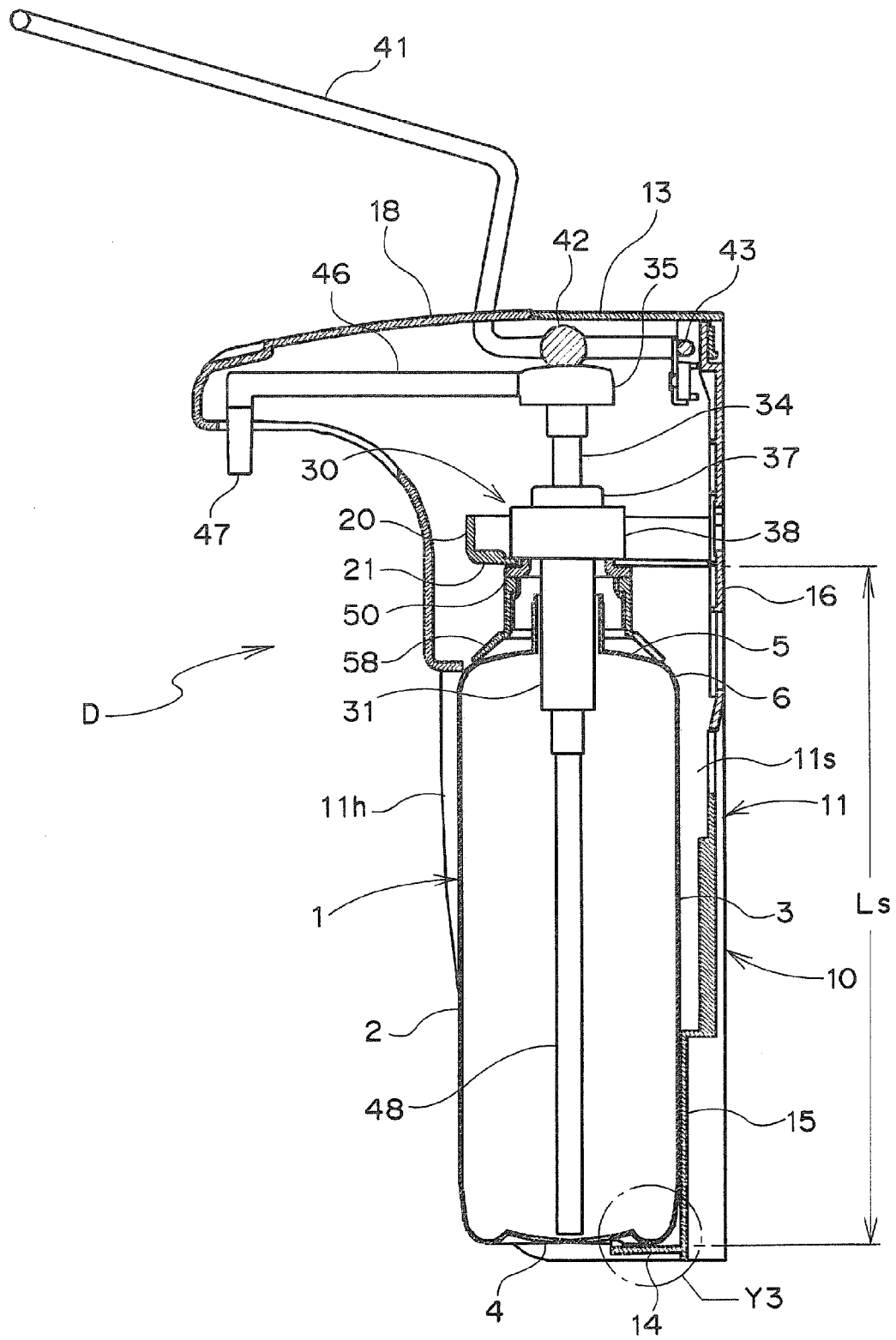
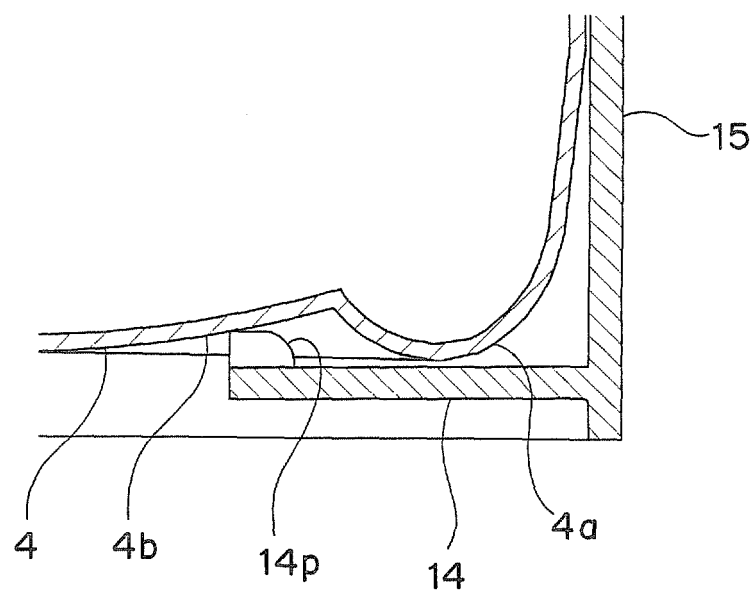




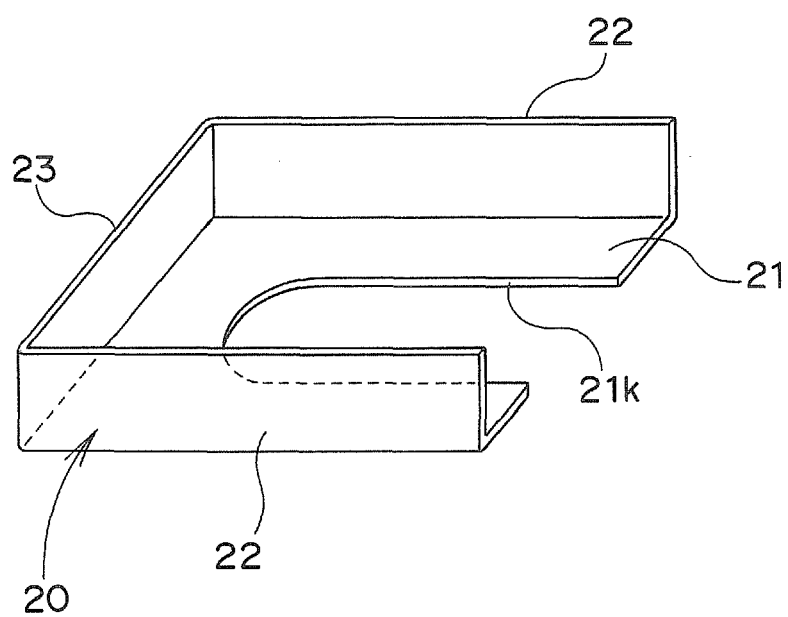
Fig. 2



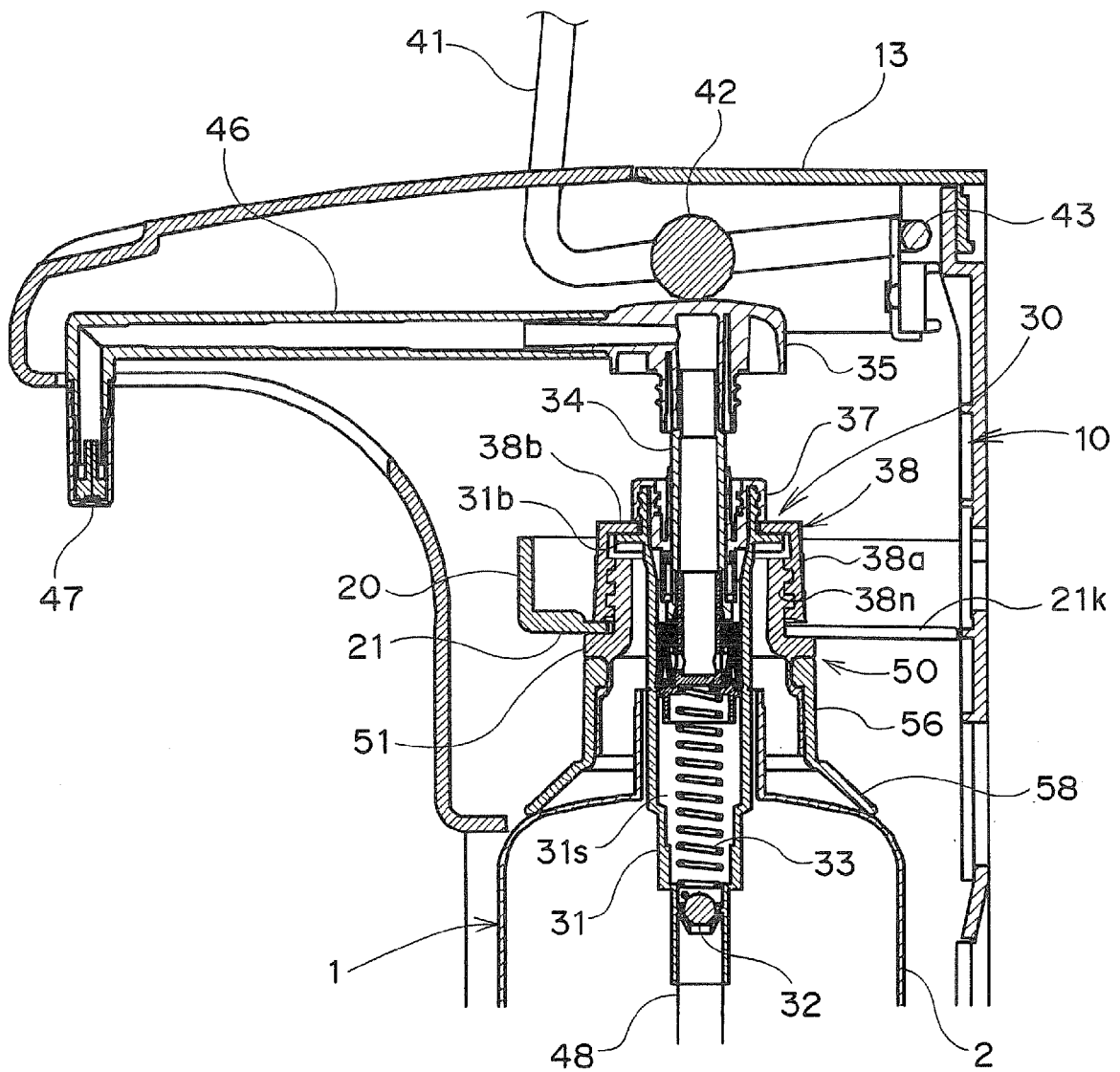
*Fig. 3*



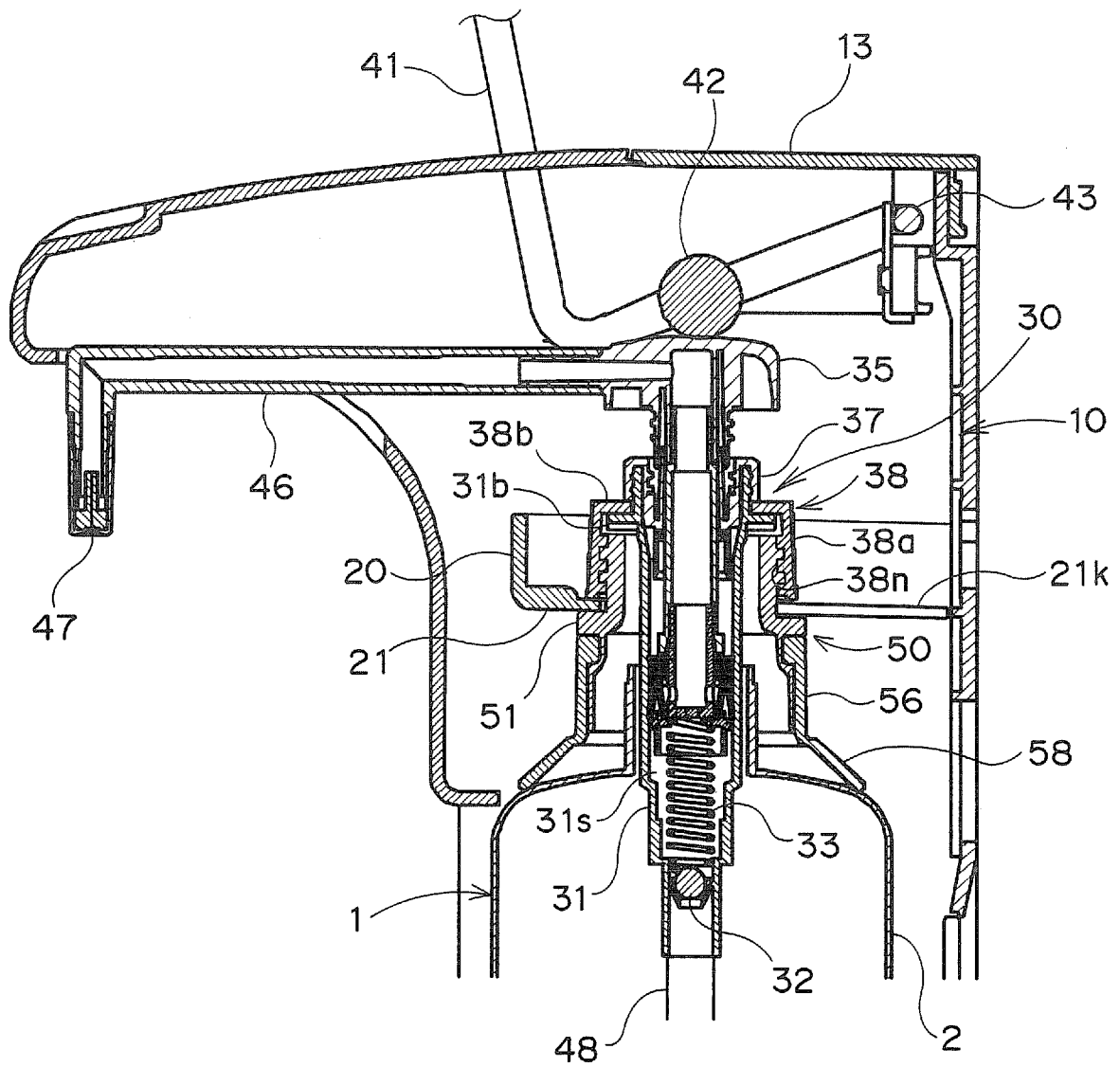
*Fig. 4*



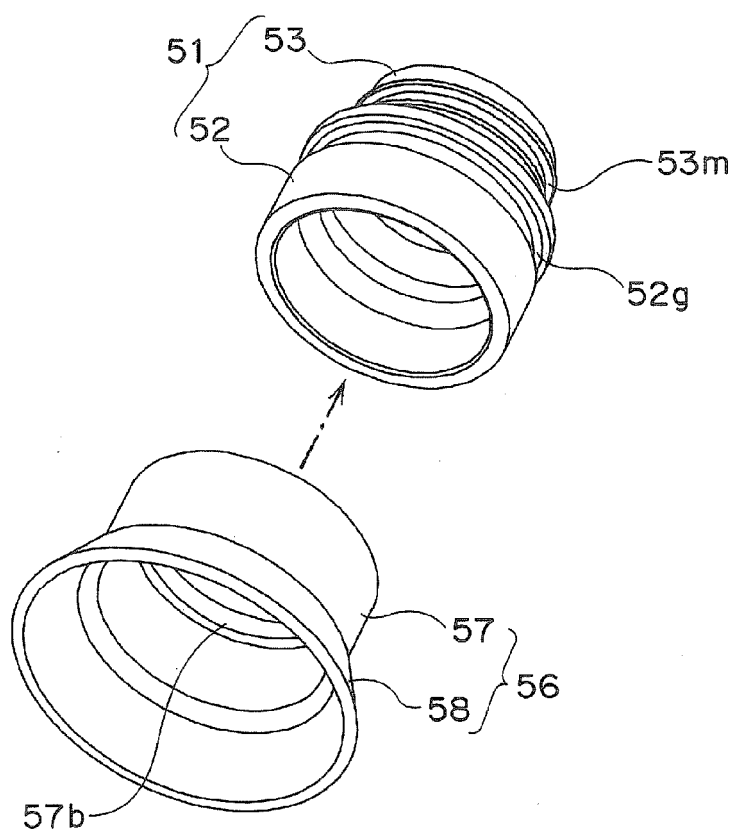
*Fig. 5*



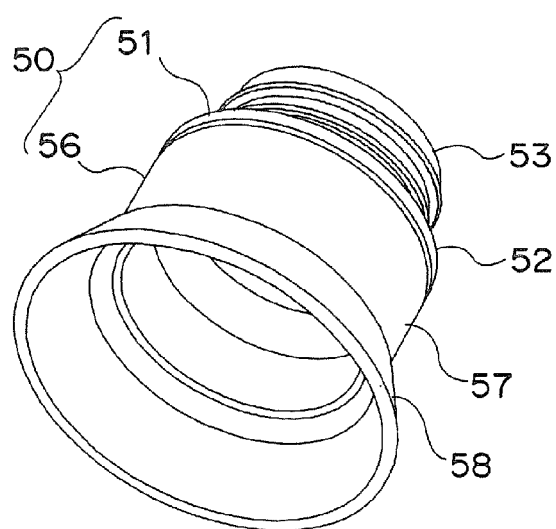
*Fig. 6*



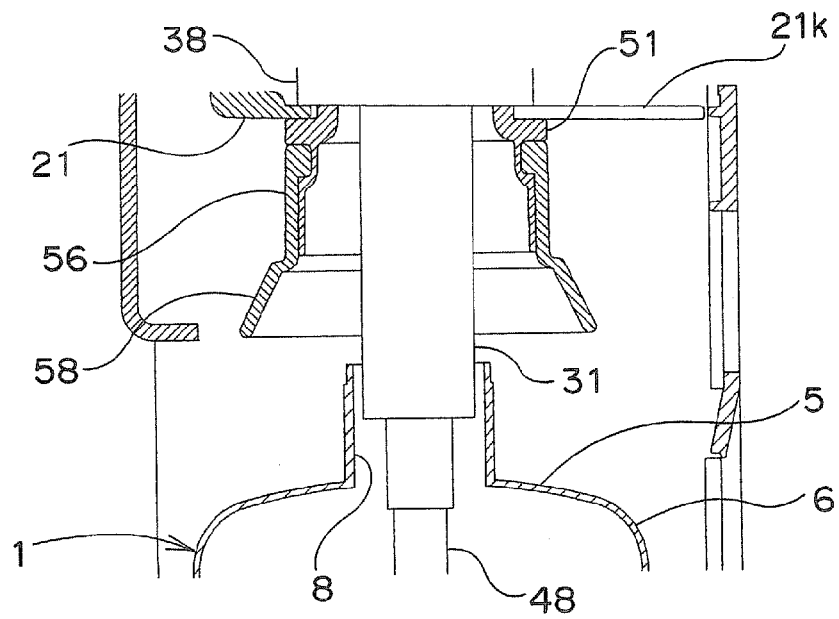
*Fig. 7*



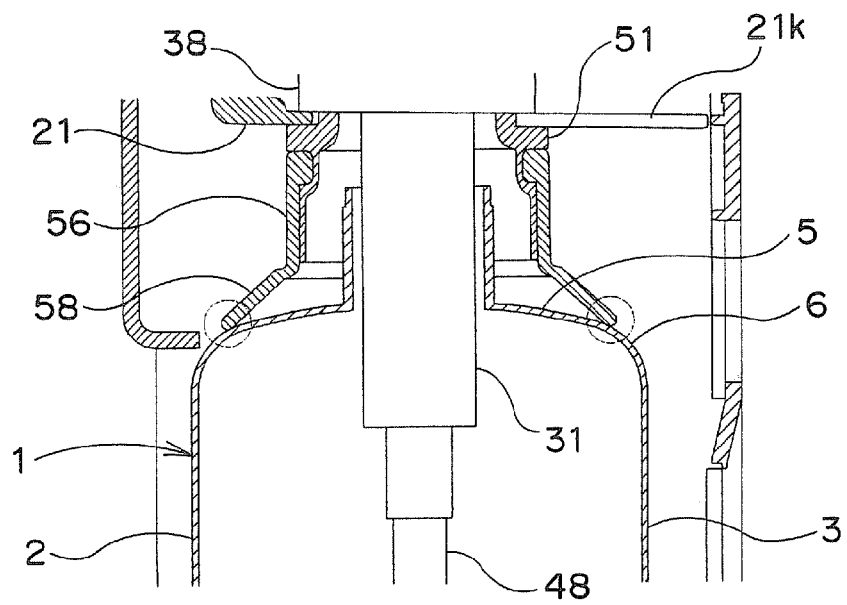
*Fig. 8*



*Fig. 9*



*Fig. 10*



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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